

ABSTRACT

An electrode pad on a semiconductor substrate having a reduced capacitance of an electrode pad portion and allowing control of a characteristic impedance for a practical electrode pad size is provided. A mesa-stripe type optical waveguide formed by stacking an n-InP clad layer 2, an i layer 3 and a p-InP clad layer and p type contact layer 4 is formed on an n-InP substrate 1, an insulating material film 8 having a mesa-shaped deposited portion 8c near the optical waveguide is formed on the n-InP substrate 1, an electrode 11a and wiring electrodes 11b and 11c for supplying an electrical signal to the optical waveguide are placed on the optical waveguide and the insulating material film 8, respectively, and an electrode pad 10 is placed on the top surface of the mesa-shaped deposited portion 8c, so that the n-InP substrate 1 and the electrode pad 10 have a predetermined interval  $t_1$  (about 17 to 29  $\mu\text{m}$ ).